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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/219,195 12/21/98 LEE

F SA997115

EXAMINER
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WM01/1002

MONICA D LEE  
IBM CORPORATION  
INTELLECTUAL PROPERTY LAW  
5600 COTTLE ROAD L2PA 0142  
SAN JOSE CA 95193

ALTMAN, F	
ART UNIT	PAPER NUMBER

2652  
DATE MAILED: 10/02/01

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

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**Office Action Summary**

Application No.

09/219,195

Applicant(s)

LEE ET AL.

Examiner

Franklin D. Altman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20, 27-37 and 41-43 is/are allowed.
- 6) ☒ Claim(s) 14-17, 21-26 and 38-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 14-17, 21, 22, 25, 26, 38 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Kudo et al (U.S. Patent 5,657,186).

As per claim 14:

Kudo et al discloses a suspension assembly (Figure 3) including:

A slider/head assembly (76) having a connecting end (78a);

A suspension (30) having a connecting end (33a, 33b, 33c, 33d) and electrically conductive paths (79); and

An interconnect module (“flexible wiring substrate 32”, column 4, line 44) coupling the connecting ends (33a, 33b, 33c, 33d are connecting ends of suspension 30) of the suspension 30 and (78a, 78b, 78c, 78d are connecting ends of assembly 76) the slider/head assembly (76) to route one or more data signals (inherent from “signal electrodes 33a to 33d”, column 5, line 57) between said electrically conductive paths (79) and said slider/head assembly (76), such that the connecting end (33a, 33b, 33c, 33d) of the suspension being position in a first direction (Figure 7 illustrates a horizontal direction in the planar surface of 32 of suspension 30) and the connecting

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end (78a, 78b, 78c, 78d) of the slider/head assembly (76) being positioned in a second direction (Figure 7 illustrates a vertical direction of assembly 76 proximal to 78a, 78b, 78c, 78d).

As per claims 15 and 25:

Kudo et al' suspension (30) is an integrated lead suspension ("One ends of the signal lead conductors 34a to 34d are electrically connected to lower ends of the electrical connectors 33a to 33d, respectively.", column 4, line 57-59).

As per claim 16 and 26:

Kudo et al' suspension (30) is configured for in-line mounting (33a, 33b, 33c and 33d show parallel in-line mounting in Figure 7) of said slider/head assembly (76).

As per claim 17:

Kudo et al's slider/head assembly (76) is orthogonally mounted (Figure 7) onto said suspension (30).

As per claim 21:

Kudo et al disclose an assembly (Figure 7) including:

A first device (30) having a connecting end (33a, 33b, 33c, 33d);

A second device (76) having a connecting end (78a, 78b, 78c, 78d) and electrically conductive paths (79); and

An interconnect device ("flexible wiring substrate 32", column 4, line 44) coupling the connecting ends of the first (33a, 33b, 33c, 33d are connecting ends of suspension 30) and second (78a, 78b, 78c, 78d are connecting ends of assembly 76) devices to route one or more signals (inherent from "signal electrodes 33a to 33d", column 5, line 57) between said first device (30) and said electrically conductive paths (79), such that the connecting end (33a, 33b,

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33c, 33d) of the first device 30 being positioned in a first direction (Figure 7 illustrates a horizontal direction in the planar surface of 32 of suspension 30) and the connecting end (33a, 33b, 33c, 33d) of the second device 76 being positioned in a second direction (Figure 7 illustrates a vertical direction of assembly 76 proximal to 78a, 78b, 78c, 78d).

As per claim 22:

Kudo et al disclose the first device (76) is a slider/head assembly (76) and said second device (30) is a suspension (30);

As per claims 38 and 40:

Kudo et al additionally disclose wherein said electrically conducting paths (79) are attached (Figure 7) to said second device (30).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo et al in view of Arya et al (U.S. Patent 6,055,132).

As per claim 23:

Kudo et al discloses the second device (30) is a suspension (30) but lacks an explicit teaching wherein the first device is a microactuator.

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However, Arya et al discloses wherein the first device is a microactuator (104).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade the head slider assembly 76 of Kudo et al to include a microactuator as disclosed by Arya et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to “provide a fine positioning of the transducer”, Arya et al, column 5, line 40-41.

2. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo.

As per claim 24:

Kudo et al discloses a storage device (device partially shown in Figure 7) including:  
A suspension assembly (Figure 7) including an interconnect module (“flexible wiring substrate 32”, column 4, line 44) between a slider/head assembly (76) having a connecting end (78a, 78b, 78c, 78d) and a suspension (30), said suspension (30) having a connecting end (33a, 33b, 33c, 33d) and electrically conductive paths (79), the interconnect module (“flexible wiring substrate 32”, column 4, line 44) coupling the connecting ends (78a, 78b, 78c, 78d) of the slider/head assembly (76) and the suspension (30) routing one or more data signals (inherent from “signal electrodes 33a to 33d”, column 5, line 57) between the electrically conductive paths (79) and said slider/head assembly (76), such that the connecting end (33a, 33b, 33c, 33d) of the suspension (30) being positioned in a first direction (Figure 7 illustrates a horizontal direction in the planar surface of 32 of suspension 30) and the connecting end of the slider head assembly being positioned in a second direction (Figure 7 illustrates a vertical direction of assembly 76 proximal to 78a, 78b, 78c, 78d); but lacks an explicit teaching of:

[1] A disk;

[2] A spindle motor positioned to support and rotate said disk;

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[3] An actuator coupled to said suspension assembly and operable to position said suspension assembly above said disk to access said disk for reading and/or writing operations.

Official Notice is taken that the following structures were notoriously well-known to one having ordinary skill in the art at the time the invention was made:

[1] A disk;

[2] A spindle motor positioned to support and rotate said disk;

[3] An actuator coupled to said suspension assembly and operable to position said suspension.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to embody the suspension assembly and head slider of Kudo et al in a well known disk drive structure including a well-known disk and a well-known spindle motor positioned to support and rotate the disk and a well-known actuator coupled to the suspension assembly and operable to position the suspension.

The rationale is as follows: one of ordinary skill in the art would have been motivated to embody the suspension assembly and head slider of Kudo et al in a well known disk drive structure including a well-known disk and a well-known spindle motor positioned to support and rotate the disk and a well-known actuator coupled to the suspension assembly and operable to position the suspension so that the suspension and head slider assembly could read or reproduce information from the disk in accordance with the known utility of a suspension and head slider assembly.

*Allowable Subject Matter*

Claims 18-20, 27-37 and 41- 43 are allowed over the prior art made of record. The closest of the prior art made of record is Arya et al (U.S. Patent 6,181,531 B1), Simmons et al (U.S. Patent (5,862,010) and Yan (U.S. Patent 6,025,988), and Koshikawa et al (U.S. Patent 6,181,531 B1).

The allowable portion of claim 18 is “an interconnect module coupling the connecting ends of the suspension and the microactuator to route one or more data signals between said electrically conducting paths and said microactuator, such that the connecting end of the suspension is positioned in a first direction and the connecting end of the microactuator is positioned in a second direction.”

Claims 31 and 37 are also allowable for reciting the same subject matter as claim 18.

Regarding claim 27, the prior art made of record and considered as a whole fails to explicitly teach or fairly suggest the entire combination set forth in the final paragraph of the claim,

“A test platform including a suspension assembly coupled to an actuator, said actuator operable to position said suspension assembly above said disk to access said disk for said test operation, said suspension assembly including an interconnect module coupled between a slider head assembly having a connecting end and a suspension, said suspension having a connecting end and electrically conducting paths, and said interconnect module coupling the connecting ends of the slider/head assembly and the suspension and routing one or more data signals between said electrically conducting paths and said slider/head assembly, such that the



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connecting end of the suspension is positioned in a first direction and the connecting end of the slider/head assembly is positioned in a second direction.”

### ***Response to Arguments***

Applicant's arguments with respect to previously rejection claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Olson et al (U.S. Patent 6,278,585 B1), Rancour et al (U.S. Patent 2,333,117 B1), Balakrishnan et al (U.S. Patent 6,275,358 B1) and Shiraishi et al (U.S. Patent 6,268,980 B1) disclose interconnect modules similar to Yan of record.

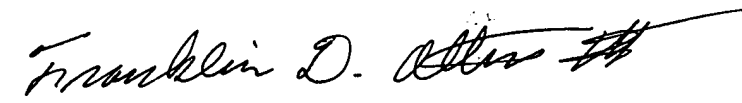
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Franklin D. Altman whose telephone number is (703) 305-7494. The examiner can normally be reached on m-th, 6:30 am - 4:00pm.

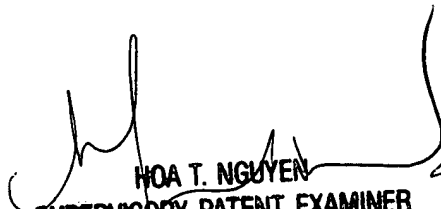
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached at (703) 305-9687.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314, which should be so designated.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

  
Franklin D. Altman, III

  
HOA T. NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600  
9/27/01